

Claims

- [c1] 1. A re-usable and disposable melter module for the vitrification of waste comprising,
- (a) a detachable means for adding waste;
 - (b) a detachable means for removing off-gases;
 - (c) a means for adding heat to melt the waste;
 - (d) a detachable means for regulating the flow of melted waste out of the module;
 - (e) a means for filling the module with vitrified waste;
- and,
- (f) a means for disposing of said filled module,
- wherein the filled module has the same outward appearance as a disposal container.
- [c2] 2. The module of claim 1 wherein the means for regulating the flow of melted waste out of the module is a freeze-drain shut-off valve comprising an outer stainless steel body, a lining of insulation, a lining of graphite, a chamber in the top section for receiving molten waste, a graphite block in the middle section of the valve coated with corrosion protection and having one or more corrosion protected flow channels that permit discharge of molten waste into the bottom section of the valve and

thence out of the valve and means for independently controlling the temperature in the top, middle and bottom sections of the valve.

- [c3] 3. A method of using the module of claim 1 comprising,
- (a) a step for connecting the means for adding waste and the means for removing off-gases to a waste source and an off-gas processing system;
 - (b) a step for connecting a disposal container to the module;
 - (c) a step for adding waste and heat to the module;
 - (d) a step for filling a disposal container;
 - (e) a step for removing the disposal container;
 - (f) a step for repeating steps (a) through (e) until a predetermined number of disposal containers have been filled;
 - (g) a step for filling the AVS-2 Melter Module with vitrified waste;
 - (h) a step for disconnecting the filled AVS-2 Melter Module; and,
 - (i) a step for repeating steps (a) through (h) until all the waste is processed.